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## (54) A TORCH FOR GAS SHIELDED ARC WELDING USING A CONSUMABLE ELECTRODE

(71) We, ENGELSSKY ZAVOD METALLOKONSTRUKTSY, a Corporation organised and existing under the laws of the Union of Soviet Socialist Republics, of Engels Saratovskoi oblasti, Eltonsky trakt, U.S.S.R., do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

The present invention relates to arc welding and, in particular, to torches for gas-shielded are welding using consumable elec-

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According to the present invention there is provided a torch for gas-shielded arc welding using a consumable electrode the torch comprising a metal tube through which both an electrode wire and shielding gas are arranged to pass to an end portion thereof, a contact tube provided at the said end portion of the metal tube and arranged to allow the electrode wire to pass coaxially out of the tube and a nozzle in the form of a cup of a ceramic refractory material provided in its bottom with a screw-threaded aperture in which the metal tube engages by an external screw thread on the tube such that the cup surrounds the said end portion of the metal tube and the contact tube, the metal tube having radial openings provided in the said end portion to allow shielding gas to pass out of the tube into the cup.

An arc welding torch embodying the invention will now be particularly described by way of example with reference to the accompanying diagrammatic drawing, the sole figure of which is a section through an arc welding torch provided with an arc welding torch holder.

The illustrated arc welding torch comprises a hollow metal tube 1 extending from a holder 9 and arranged to allow both a consumable electrode in the form of a wire and a shielding gas to pass through it.

A contact tube 2 is secured in the end of the tube 1 remote from the holder 9 by means of screw threads. The contact tube is provided with a passage 3 to allow the electrode wire to pass coaxially out of the tube 1. The contact tube 2 and the adjacent end portion of the tube 1 are disposed within a nozzle in the form of a cup 4 of a ceramic refractory material.

The tube 1 is provided with a screw thread 7 which engages in a threaded opening 6 in a thickened bottom 5 of the cup 4. The tube 1 is provided with radial openings 8 located just inside the cup 4, near the bottom 5 for letting out the shielding gas from the tube

into the hollow cup 4.

Thus both the shielding gas and the electrode wire pass through the hollow tube 1 up to the end portion thereof, where the shielding gas passes directly into the cup 4 through the openings 8 and the electrode wire passes through the passage 3 of the contact tube 2 into the cup 4.

Therefore the cup 4 acts as both a gas distributor and a nozzle. This combination of parts into a single cup 4 simplifies the design of the arc welding torch. Any ceramic refractory material can be used for making the cup 4, in particular, "Borcorundum" comprising alumination orido della dum" comprising aluminium oxide, dolomite, clay and glass, or a ceramic material widely known as "Uralite" (Registered Trade Mark).

The holder 9 comprises a handle 10 in the form of a rubber pipe covering a metal stem 11. The metal stem 11 is connected to a flexible welding cable 12, in which there is provided a helical duct 13 for feeding the electrode wire. A pipe 14 is also built into the stem 1 for supplying the shielding gas which in the present example is carbon dioxide. The torch is engaged in a screw threaded opening 15 in the front end of the

metal stem 11. The described arc welding torch is advan-

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tageous in that the expenditure on nonferrous metal is greatly reduced owing to the fact that the nozzle is made of a ceramic refractory material, which significantly decreases the price of the arc welding torch. Besides, the fact that the torch nozzle is made of a refractory material practically excludes the possibility of a short circuit and therefore the torch is very reliable.

In addition the torch allows the welder to work efficiently and the results are the results and the results are the results and the results are the results a

work efficiently and permits a great freedom of operation when welding complex constructions. However the torch has a simple design and is therefore low on production costs. It can be employed for welding with current of up to 600A.

WHAT WE CLAIM IS:

1. A torch for pas-shielded are welding

1. A torch for gas-shielded arc welding using a consumable electrode, the torch comprising a metal tube through which both an electrode wire and shielding gas are arranged to pass to an end portion thereof, a contact tube provided at the said end portion of the metal tube and arranged to allow the electrode wire to pass coarially allow the electrode wire to pass coaxially out of the tube, and a nozzle in the form of a cup of a ceramic refractory material provided in its bottom with a screw-threaded aperture in which the metal tube engages by an external screw thread on the tube such that the cup surrounds the said end portion of the metal tube and the contact tube, the metal tube having radial openings provided in the said end portion to allow shielding gas to pass out of the tube into the cup.

2. A to in a sala med in Claim 1, where-

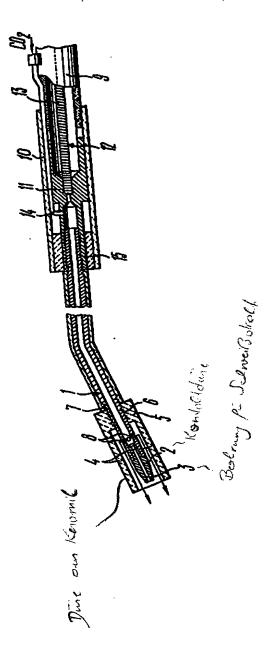
in the cup is made of Borcorundum. 3. A torch substantially as hereinbefore described above with reference to the accompanying drawing.

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1 SHEET

This drawing is a reproduction of the Original on a reduced scale



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